

ICT in Education in Ethiopia

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Source: *World Fact Book*¹

Please note:

This short *Country Report*, a result of a larger *infoDev*-supported *Survey of ICT in Education in Africa*, provides a general overview of current activities and issues related to ICT use in education in the country. The data presented here should be regarded as illustrative rather than exhaustive. ICT use in education is at a particularly dynamic stage in Africa; new developments and announcements happening on a daily basis somewhere on the continent. Therefore, these reports should be seen as “snapshots” that were current at the time they were taken; it is expected that certain facts and figures presented may become dated very quickly.

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Overview

Leapfrogging is the word most technical people would use to describe the advancement, at least in infrastructure, that has occurred in Ethiopia in less than 10 years. Even though the country may still have one of the lowest tele-densities in the continent, there are signs that this situation will soon change. The WoredaNet, the e-government communication backbone, developed by the Ethiopian Telecommunication Corporation, is a promise and a major enabler for rapid ICT development in the country.

Already the public sector and the education sector have begun to benefit from this network, and the health and agriculture sectors have been lined up for the next phase. With all this and a corresponding ICT for education policy and implementation plan, Ethiopia is set to become a model ICT user on the continent. The infrastructure seems to be falling into place and the policies and strategies are already there. The challenge now is for the government to effectively co-ordinate the implementation of the strategy.

Country Profile

Ethiopia covers a total area of 1.25 million square kilometres with an estimated total population of 75.6 million (2005), growing at an annual rate of 2.7%. In demographic terms, the population of Ethiopia can be termed as young, as about 45% of its population is under 15 years (2004). This trend in population growth has consequences for the education sector; there may be additional strain placed on the system through increasing demand for primary and secondary education. The net primary enrolment for 2004 was 46% while that of secondary for the same period was 25%.²

Nearly 84% of the current population is rural and depends for its livelihood predominantly on a traditional agricultural economy that is susceptible to persistent drought and low levels of productivity. The country's largely rain-fed agricultural production accounts for about 46% of the GDP, 85% of the exports, and nearly 90% of the labour force. The industrial sector accounts for 10% of the GDP and 15% of the exports, and employs close to 2% of the labour force.³

Table 1 provides some selected socio-economic indicators for the country.

Table 1: Socio-economic Indicators: Ethiopia

Indicator	
Population	75.6 million (2005)
Languages	English, Amharic, Tigrinya, Oromigna, Guaragigna, Somali, Arabic, other local languages,
GDP per capita (US	\$114 (2004)

dollars)	
Human Development Index (2004)	170 (out of 178 countries)
Human Poverty Index (2004)	98 (out of 102 countries)
Expenditure on education (as a percentage of GDP)	4.6 %

The Education System

Table 2 provides rates of enrolment at various levels of education

Table 2: Selected Education Statistics⁴

Net primary enrolment (%)	22% (1991); 46% (2004)
Net secondary enrolment (%)	25% (2004)
Gross tertiary enrolment	19% (2004)

Education policy

The importance the Government of Ethiopia has placed on education for national development is evident from the urgency with which the transitional government adopted the Education and Training Policy in 1994.⁵ This document outlined the mission and goals for the education system of Ethiopia to achieve the present and future national economic and social development goals. It has been the foundation of all the sector policies that have followed, including the Education Sector Development Programme I and II and the ICT in Education Implementation Strategy and Action Plan.

The ICT in Education Implementation Strategy and its corresponding Action Plan are components of a wider Ethiopian national e-education initiative. This initiative forms one of the pillars of the ICT for Development 2010 Plan.⁶

The strategy is built on three main streams:

- Ethiopian National SchoolNet Initiative
- The National ICTs in Higher Education Initiative
- The National ICT Education, Training and Awareness Initiative

These three streams form the basis for the implementation of the strategy across the education sector. The National SchoolNet initiative, for instance, is aimed at the deployment and the exploitation of ICTs to facilitate the teaching and learning process within primary, secondary, technical and vocational schools. The ICTs in Higher Education Initiative focuses on deploying ICTs within the universities, colleges, and

research institutions. And, finally, the National ICT Education, Training and Awareness initiative promotes ICT awareness and literacy, lifelong and adult education, and distance and virtual education and learning. The strategy also identifies strategic goals and draws up a programme and activities for each initiative.

Both the national ICT4D 2010 Plan and the ICT in Education Implementation Strategy recognise ICT as an enabler for widening access to education for the Ethiopian population, for supporting literacy education, and for facilitating educational delivery and training at all levels.

Infrastructure

Ethiopia's national ICT policy has set the stage for growth within the ICT sector despite the country having one of the lowest penetration rates in the region. Tele-density in 2005 was 0.83 per 100 inhabitants, exclusive of mobile telephony. If the 410,630 mobile subscribers are included, the penetration rate shoots up to 1.39 per 100 inhabitants in the same period. In 2004 the country recorded 225,000 personal computers to be in use, but mainly in the capital city Addis Ababa.⁷

The number of Internet users rose from 75,000 in 2003 to 113,000 in 2004 with 88 Internet hosts. The usage numbers were again skewed for the urban community, which forms only 15% of the total population. This trend is indicative of the country's infrastructure development with most of the communication infrastructure concentrated around the capital city.

Ethiopia Telecommunication Corporation (ETC) was licensed by the regulator, Ethiopia Telecommunications Agency (ETA) as the national operator to provide public switched telecommunication services, GSM 900Mhz mobile telecommunication service, Internet service, and digital data communication.⁸

Table 3 gives a statistical overview of the infrastructure available.

Table 3: ICT Infrastructure in Ethiopia

Telephone lines	610,300 (2005)
Mobile telephones	410,630 (2005)
Internet users	113,000 (2005)
Internet hosts	88 (2006)
Television broadcast stations	1 plus 24 repeaters (2002)
Radio stations	AM 8, FM 0, shortwave 1

ICT in schools

With the existing infrastructure, there are obvious challenges to the proposed strategy. For instance, the strategy envisages the integration of ICT into the learning, teaching, and administration of the school system through education information management systems. But with only 40% of schools in Ethiopia having computers, this may be a daunting task. And of the schools that do have computers, most of them are in Addis Ababa, thereby creating a major rural-urban divide should the strategy be implemented within the current context.

A related challenge is that most schools have limited or low access to the Internet. Those schools that are connected generally use e-mail only, and it is available only to the administration. Access to ICTs by teachers is also limited, especially to computers and the Internet, which makes it difficult to assume that educators can integrate ICT into their teaching.

These challenges notwithstanding, the Ministry of Education, through the ICT in Education Implementation Strategy, has drawn up an action plan that consists of 15 programmes and initiatives. These programmes include the formation of a National Task Force for ICT in Education and a Secretariat under the Ministry of Education that will coordinate the activities.

To address the connectivity challenges, the Ethiopian Telecommunication Corporation, with assistance from the government, the World Bank, the African Development Bank, and the International Monetary Fund has established a state-of-the-art multimedia broadband backbone infrastructure with a core nucleus of 4,000 kilometres of optical fibre.⁹ (See **WoredaNet Initiative** below.)

It is this same network that has provided a backbone for the first phase of the SchoolNet initiative. Classrooms in schools are equipped with plasma screens and receive lessons via video broadcast for eight hours a day by satellite TV with content from the Educational Media Agency.¹⁰ Local area networks have also been established in 181 schools, which have also received computers from the project.

ICT in universities

In a baseline survey conducted by the Ministry of Education, it emerged that most universities and institutions of higher learning in Ethiopia have computers. However, these computers are few and, therefore, shared at a student-computer ratio of 10:1 in most cases. The study also showed that despite the presence of computers, most of the institutions lack a network infrastructure and have limited connectivity. The lecturers are yet to adopt ICT as a teaching tool, and only a small number of students use computers and the Internet as a learning resource.

One of the key roles that ICT has played in the higher education sector is that of distance learning through the Internet. In Ethiopia, however, most of the nation's universities have indicated they are not involved in electronic distance education (EDE) initiatives; in fact, only 15% of private universities have indicated that they use EDE.

However, there has been some movement from some universities. The University of Addis Ababa, for instance, has an ICT development office charged with the sole responsibility of implementing ICT initiatives.¹¹ These include developing systems and infrastructure for use by students, lecturers, and the administration. The university is also collaborating with the Indira Gandhi National Open University on electronic distance education.

At the school level, the co-ordination seems to be centralised at the Ministry of Education through the Regional Education Bureau. However, at the university and college level, it appears most activities are carried out and co-ordinated by the universities themselves. Other players in government include the Ministry of Finance and Economic Planning, the Ministry of Capacity Building, the Ministry of Defense, and the Ethiopia ICT for Development Agency.

Current ICT Initiatives and Projects

WoredaNet Initiative

This is a major e-government initiative that connects all 600 of Ethiopia's local councils (*woredas*) to 11 regional capitals through Internet telephone and video-conferencing. .) Half the links are by cable, and half by satellite The initiative also provides connectivity to the SchoolNet, eHealth, and the soon-to-be launched AgriNet. WoredaNet is implemented by the Ethiopia Telecommunication Agency with funding from the World Bank and the African Development Bank through the Ministry of Capacity Building.

For more information:

www.cisco.com/application/pdf/en/us/guest/netsol/ns579/c647/cdcont_0900aecd8030981d.pdf

SchoolNet Ethiopia

The joint initiative by the Ministry of Education and UNDP is probably the most visible project in the country with a total of 181 schools equipped with a minimum of 15 networked computers per lab all connected to the Internet. An additional 15 schools were to be equipped with computers and a printer by the end of February 2007. There are new programmes around this initiative in the planning stages, including creating an extranet that will connect the schools.

For more information: www.schoolnet.et

Distance Learning

The Ministry of Education has initiated a distance learning initiative using video-conferencing with the Indira Gandhi National Open University in India. The project has started accepting students, mostly teachers, and offering master's degrees in economics, marketing, and business administration. The project is in collaboration with the University of Addis Ababa, Alemaya University, and St Mary's College.

ICT Development Office of AAU

The ICT Development Office at Addis Ababa University was established as a liaison office for collaborating with overseas universities, development partners, and relevant local institutions to initiate and implement ICT-related projects and activities. The broad duties and responsibilities of the office are developing an ICT strategic plan and overseeing its implementation. This initiative is supported by Ethiopiaaid and Sida.

For more information: www.aau.edu.et/ict/index.php

Ethiopic Standards Development and Dissemination Program Development

This Government of Ethiopia and UNESCO-supported initiative enables unrestricted and easy communication using modern computers and software for Ethiopic script users. The project has developed a standard keyboard layout and has provided standard terminology of computer words in Amharic.

For more information: www.eictda.gov.et/Standard.htm

Implementing ICT in Education: What Helps and What Hinders?

Unlike many African countries where educationalists are still grappling with policy issues and trying to formulate strategies for adoption of ICT within their education sector, Ethiopia has done well in developing a detailed strategy and an accompanying implementation plan all with action plans and timelines. This does not mean however, that there are not challenges and constraining factors to the adoption of ICT.

Table 4 lists some of the most visible enablers and inhibitors of ICT use.

Table 4: Factors Influencing ICT Adoption

Factor	Enabling Features	Constraining Features
<i>Policy framework and implementation plans</i>	Ethiopia has a well structured plan that clearly identifies the issues and sets out a strategy to address the various challenges of implementing ICT in the education sector. The strategy also maps the activities in the action plan with key policies and gives time lines on the various deliverables.	
<i>Gender equity</i>	About 50% of school-age girls do not have access to primary schools, and even those who do often drop out or repeat for economic or cultural reasons. However, the Ministry of Education, in partnership with the British Council and the UK's Active Learning Centre, have been working to improve girls' enrolment and to reduce their poor performance.	

<i>Infrastructure and access</i>	Ethiopian Telecommunication Corporation has made tremendous effort in establishing the national backbone. This has contributed to the SchoolNet initiative that has provided Internet connectivity to 181 schools.	Infrastructure development remains the biggest constraint for the use of ICT in the education sector. The cost of equipment and bandwidth are barriers to entry for schools and, therefore, students. This is compounded by the major distribution disparity of infrastructure between the urban and rural areas. Schools in rural areas are most disadvantaged; most of the existing infrastructural resources are concentrated in the urban areas, especially Addis Ababa.
<i>Lack of resources</i>		Most schools and even colleges have not factored in ICT development to their organisation's budget. The public schools are entirely dependent on the federal government plans to equip them with the various ICTs and on donations from well-wishers.
<i>Language barrier</i>		Amharic is a working language in Ethiopia. Unfortunately, a lot of content on the Internet is in English, which creates a barrier to the Amharic-speaking population.
<i>Skills and capacity</i>		ICT skills are still low in Ethiopia, which creates multiple problems of usage and utilisation of ICTs.
<i>Awareness of the benefits of ICT</i>	Some schools and institutions are aware of the benefits of adopting ICTs into their organisations and have taken advantage of and have invested and are utilising ICTs to give their students an edge. These are, however, mostly private schools and are mostly located in Addis Ababa.	Lack of awareness of the benefits of ICT is a major hindrance to its adoption, especially within the education sector. Most rural communities in Ethiopia, which form more than 80% of the population, have not woken up to the issues of the information society.

Notes

1. The World Factbook 2007. <https://cia.gov/cia/publications/factbook/geos/et.html>
2. Country Fact Sheets: Ethiopia, "Human Development Report." 2006. http://origin-hdr.undp.org/hdr2006/statistics/countries/country_fact_sheets/cty_fs_ETH.html
3. World Fact Book. 2007. <https://cia.gov/cia/publications/factbook/geos/et.html>
4. World Bank Summary Education Profile; Ethiopia http://devdata.worldbank.org/edstats/SummaryEducationProfiles/CountryData/GetShowData.asp?sCtry=ETH_Ethiopia
5. Education and Training Policy. www.moe.gov.et/Laws_and_Regulations/EthiopianEduAndTraining-policy.aspx
6. ICT in Education Implementation Strategy and Action Plan. 2006. Ministry of Capacity Building, National ICT4D Action Plan for Ethiopia. 2006. <http://www.estc.gov.et/ICT%20policy.htm>

7. "Annual Statistical Bulletin (2005/06)." 2005. Ministry of Transport and Communication, Ethiopia Communication Agency. www.eta.gov.et/Button/Word/Tele-Stat_Bulletin_Analysis_1997.pdf
8. Ethiopian Telecommunications Agency, Licences. 2007. www.eta.gov.et/Button/Licenses.htm
9. "Ethiopia Telecom's Next-Generation Network Supports a Nation's Economic Transformation." 2004. Cisco Systems. www.cisco.com/application/pdf/en/us/guest/netsol/ns579/c647/cdccont_0900aec8030981d.pdf
10. "Ethiopia's Digital Dream," *The Guardian*. 4 August 2005.
<http://technology.guardian.co.uk/online/story/0,,1541785,00.html>
11. ICT Development Office of Addis Ababa University, Ethiopia. www.aau.edu.et/ict/index.php

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